

REMARKS

Applicant respectfully requests reconsideration of this application as amended. Claims 12, 13, 18, and 19 are pending in the application. Claims 12 and 18 have been amended.

The Examiner rejected claims 12, 13, 18 and 19 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0051560 filed by Donescu in view of Lumini, “Wavelet-based Image Watermarking Scheme.” Applicant respectfully disagrees.

Claim 12 is amended to recite the elements of “the embedding information to include a greater amount of the digital watermark data in a first high frequency component in horizontal and vertical directions than a low frequency component in a horizontal direction and a second high frequency component in a vertical direction.” Support for the amendments may be found, for example, in paragraph [0108] of the Specification. Neither Donescu nor Lumini teach or suggest these elements. In contrast, Donescu teaches in Fig. 4 that for each block of coefficients, a set of valid sub-blocks for inserting watermark data is determined. See Donescu, paragraphs [0143], [0145]. However, Donescu fails to teach or suggest that the watermark data is inserted in the valid sub-blocks in the manner recited in claim 12. Thus, Donescu fails to teach or suggest the elements of “the embedding information to include a greater amount of the digital watermark data in a first high frequency component in horizontal and vertical directions than a low frequency component in a horizontal direction and a second high frequency component in a vertical direction,” as recited in claim 12.

Further, Lumini fails to teach or suggest the above missing cited elements. Instead, Lumini teaches that the strength of the watermark to be inserted is based on the perceptual capacity of the image. See Lumini, section 4.2. In particular, Lumini discloses that a lower number of coefficients are expected to be modified in homogeneous images and a higher number

of coefficients could be modified in detailed images. See Lumini, section 4.2. Lumini then discloses that coherent images with most of the information concentrated in a few coefficients possess a large capacity to contain and convey information. By embedding the watermark signature in a coherent portion of an image, Lumini is able to avoid the cost of a deep modification of the original image because the coherent portion of the image is less sensitive to noise (e.g., watermark data). To determine the coherent portions of an image, Lumini teaches the use of a threshold value to select the coefficient to be modified in the watermark insertion procedure. See Lumini, section 4.2. Lumini's threshold value is taught as being the *average value of the frequency coefficients* inside the L_2 and L_3 frequency bands of the image. Therefore, because Lumini's threshold value is selected based on the *average value of frequency coefficients of the image*, Lumini method of watermark insertion fails to teach the elements of "the embedding information to include a greater amount of the digital watermark data in a first high frequency component in horizontal and vertical directions than a low frequency component in a horizontal direction and a second high frequency component in a vertical direction," as recited in claim 12.

In view of at least the above reasons, Applicant respectfully submits that the combination of Donescu in view of Lumini does not set forth all the limitations in Claim 12. In addition, dependent claim 13 is patentable over the cited art because it depends on claim 12. Accordingly, reconsideration and withdrawal of the rejection of claims 12 and 13 are respectfully requested. Therefore, Applicant respectfully submits that claims 12 and 13 are not obvious in view of Donescu and Lumini.

With respect to claim 18, this claim, as amended recites analogous limitations to those in claim 12. Thus, for at least the reasons discussed above in connection with claim 12, Donescu and Lumini fail to teach or suggest each element of claim 18 as well. Further, dependent claim

19 is patentable over the cited art because it depends on claim 18. Accordingly, reconsideration and withdrawal of the rejection of claims 18 and 19 are respectfully requested.

The Examiner rejected claims 12, 13, 18 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Donescu in view of U.S. Patent Publication No. 2004/0001608 filed by Rhoads. Applicant respectfully disagrees.

Claims 12, 13, 18 and 19 are patentable over Donescu for at least the reasons discussed above. Further Rhoads fails to teach or suggest the elements of these claims. The Examiner has not cited and Applicant is unable to discern the portion of Rhoads that allegedly teaches or suggest the missing elements. Thus, Donescu in view of Rhoads fails to teach or suggest each element of claims 12, 13, 18, and 19. Accordingly, reconsideration and withdrawal of the rejection of claims 12, 13, 18 and 19 are respectfully requested.

CONCLUSION

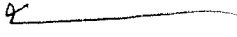
Accordingly, Applicant respectfully submits that the objections and rejections to the claims have been overcome by the amendments and the remarks and withdrawal of these rejections is respectfully requested. Applicant submits that Claims 12, 13, 18, and 19 as amended are in condition for allowance and such action is earnestly solicited.

If there are any additional charges, please charge Deposit Account No. 02-2666 for any fee deficiency that may be due.

Respectfully submitted,

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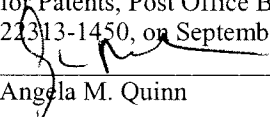
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